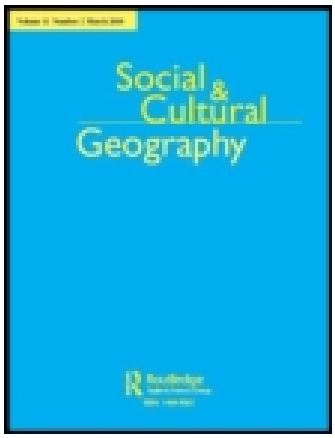

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Domesticating technological myth: gender, exhibition spaces and the clean air movement in the UK

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This paper explores the relation between technologies and the reconfiguration of gender relations in the British home. Drawing on Haraway's concept of technological myth, and Barthes' reflections on the modern myth-making process, analysis considers how the promotion and animation of new smokeless technologies in late nineteenth- and early twentieth-century Britain was under-girded by a reconstituted vision of the British home and the woman's place within it. In part, smokeless technologies promised the liberation of housewives from the 'drudgery' of domestic labour. The myths associated with smokeless technologies were, however, also suggestive of a more open sense of the home, within which female citizens could combine a concern with the domestic needs of the family with the broader moral reform of the city as a whole. Through an analysis of various smoke abatement exhibitions, which were convened throughout the UK during the late nineteenth and early twentieth centuries, this paper explores how smokeless technologies were braided into a new mythical geography of the British home. While at one level, this new home promised a scientifically liberated domestic sphere and a more publicly engaged female citizenry, it ultimately served to restructure and reassert the British woman's role within the modern household. Analysis focuses specifically upon the exhibit materials and popular press accounts associated with key smoke abatement exhibitions in the UK.

Key words: domestic technologies, home, gender, clean air exhibitions.

Introduction

In March 1912 the city of Glasgow hosted one of a series of nationwide smoke abatement exhibitions in the Zoo Buildings off New City Road. The purpose of this exhibition was to promote what was perhaps the most important urban policy goal of the time—namely the production of a smokeless city (Brimblecombe 1987; Mosley 2004). This is how *The County Municipal Record* reflected upon Glasgow's Smoke Abatement Exhibition,

> The Exhibition is a forward movement and should stimulate the endeavour among the citizens to make it a still greater success, and a desire to profit from its lessons … When you leave the well tempered atmosphere of the hall and pass into the mugginess

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> of the street air, the lessons you have just, perhaps unconsciously, learned come vividly before your mind. You cast a glance at the dark sky, fervently wish the objects of the smoke abatement exhibition a success, sink your chin into the folds of your muffler, and stride home determined to install a coaless, smokeless system of heating and cooking into the home. (*The County Municipal Record* 1912: 510 [LCC/PC/GEN/1/33][1])

The incorrigible sanguinity and romantic cadences of *The County Municipal Record* belies two important aspects of the exhibition, and the broader clean air movement, which are evident in this short passage. First, that the struggle for clean air in early twentieth-century Britain was partly about the production and popularisation of new technologies which, it was claimed, would not only enable the British household to function in a more time-efficient way, but also without the requisite smoke output. Second, this quote reveals the connections that were being constructed between the pursuit of a smokeless city and a hybrid moral geography that linked the public and private spaces of the metropolis. According to *The County Municipal Record*, the moral responsibility for creating a smokeless city did not only fall on municipal authorities (see Hall, Land, Parker and Webb 1975), or industrial corporations, but was also a responsibility of every home.

This paper takes as its theme the connections between the socio-scientific reform of the modern British household and the broader moral geographies associated with the creation of smokeless cities (see Stradling and Thorsheim 1998). In exploring this theme particular attention is given to the promotion of new technological devices, which were related to the transformation of the domestic sphere into a smokeless zone. Significant effort was spent endorsing these new technologies through exhibitions, specially created journals, new technological societies and organisations, and even innovative college courses and qualifications (see Luckin 1990). This paper argues that a crucial part of this promotion process was the construction of a series of technological myths that directly connected various technological devices with the vision of a new British home and a new British housewife. Drawing on Haraway's (2004) notion of the technological myth, and Barthes' (2000) reflections on the modern myth-making process, analysis considers how, in the avid promotion of smokeless technologies, these exhibitions sought to reshape the modern household and promote a new mythology of metropolitan womanhood. By tracing the emergence of these new domestic technologies and associated socio-technological myths, this paper reveals the important role of the technological in reconfiguring a range of spatial relations associated with the modern home. Initially portrayed as the triumphal basis for a new science of household management, this paper focuses on how, during the promotion of smokeless technologies, a new technological myth emerged that simultaneously promised the liberation of women from the home and the restructuring and reconfirming of women's moral positioning within the modern city. Ultimately this paper makes two important contributions to existing work in environmental and feminist history. First, it extends existing socio-cultural accounts of the history of clean air movements in the UK and North America (see Brimblecombe 1987; DuPuis 2004; Mosley 2001; Stradling and Thorsheim 1998) by uncovering the often-overlooked gender dynamics associated with this political process. Second, analysis reveals that, in addition to promising the physical emancipation of women from the home (a common theme

within feminist urban history) (see Morin and Berry 1999), the technological mythologies associated with clean air movements also suggested a broader moral integration of the housewife into public life.

In relation to these interlocking themes, this paper seeks to address this Special Issue's concern with the connections between geography and technology studies by trying to uncover the active role of technological myth within the moral governance of space and in the spatial conditioning of gendered conduct. By focusing on the geographies of the modern home, particular attention is given to the role of technology in constituting the multifarious spatialities of the home, and in exposing the arbitrary distinctions which are routinely constructed between the spaces of the home (the private, the domestic) and the spaces of public interaction (civic community, workplaces) (see Cresswell 2006; Llewellyn 2004a). By exploring household technologies this paper attempts to reveal the often-overlooked role of the domestic sphere within the cultural appropriation and adaptation of technological devices, while also uncovering the mundane technologies, and associated *technological unconscious* (see Thrift 2004) that is routinely overlooked within contemporary geographical work on the home. Although exploring household technologies, this paper does not actually consider the use and application of technologies within British households. Attention instead concentrates on how a new techno-ethical vision of the British household was first envisioned and promoted through a series of popular exhibitions. Smoke abatement exhibitions, like the one held in Glasgow in 1912, became popular during late nineteenth and the early twentieth century. These exhibitions were run and organised by local municipal authorities, gas and electricity departments, local smoke abatement societies, and more latterly by the National Society for Clean Air. Reflecting on the records of these organisations,[2] analysis seeks to understand the historical practices through which urban female subjectivities were being recast in early twentieth-century Britain (for more on the application of feminist historical geographies, see Domosh and Morin 2003; Morin and Berry 1999). This paper draws on materials from a range of exhibitions including: the International Smoke Abatement Exhibition (Islington, 1912); the Glasgow Smoke Abatement Exhibition (1912); the Ideal Homes Exhibition, held at London's Olympia in 1913; the National Gas Exhibition's Conference on the Economies of the Home; and the numerous exhibitions organised by National Smoke Abatement Society.

Household technologies and the geographies of the home

Home, space, and technology

The home is on the geographical agenda like never before. A once neglected place of geographical enquiry (see Domosh 1998), the intimate spaces of the home are now central to a range of current research agendas including architectural geographies (Llewellyn 2004a, 2004b); the geographies of postcolonialism (Blunt 2002; Gowans 2003; Legg 2003); health geographies (Butler and Parr 1999); nature studies (Kaika 2005), and analyses of geographical scale (Marsdon 2000). This re-homing of geography reflects a broader re-engagement of the social sciences with the spaces of everyday life, routine and banality (Seigworth 2000; Whitehead 2005). Inspired by the writings of Henri Lefebvre, Michel de Certeau, Ervin Goffman and Agnes Heller, among others, this project explores the role of

the spaces of the mundane and (often unconscious) routine within the braiding of political life, economic reproduction, and social identity. In this broad context contemporary geographical work on the home has attempted to move beyond sociological analyses of households as the places of family studies, residence and retreat (see Bennett 2002: 6), to consider the broader spatial significance of the home to life itself. While the household has a certain taken-for-granted quality today, critical geographical studies of the home have emphasised the invented nature of the domestic sphere, and how its arbitrary construction affects class, race, gender and even non-human relations (see Bennett 2002). In this context the notion of home life is not simply seen as the leftover remnants of social existence—the unthinking space of social retreat and reproduction—but as a powerful locus of socio-cultural expression and regulation.

In the context of the new challenges which are being presented to how we understand and perceive of different types of 'home space', technology has become an increasingly important object of enquiry within home studies (see Star 2000). Donna Haraway has undoubtedly provided one of most important set of reflections of the destabilising impacts of new technologies on how homes (and their associated socio-material relations) are constituted (1991, 1997, 2004). In her thought-provoking analysis of cyborgs Donna Haraway confirms the ontological and epistemological impacts that technological changes can have on the domestic form and political functioning of households,

> The cyborg is resolutely committed to partiality, irony, intimacy, and perversity. It is oppositional, utopian, and completely without innocence. No longer structured by the polarity of public and private, the cyborg defines a technological polis based partly on a revolution of social relations in the *oikos*, the household. (Haraway 2004: 9)

It is clear that while technologies do not make or determine household form, or the various human and non-human relations that are constituted in home spaces, in any deterministic way, as spatial assemblages of technological devices, gizmos, procedures and tools, the performative potential of the home, and the people who inhabit it, are critically shaped by the technologies that reside in home spaces. It is, of course, precisely in this context that Judith Butler debunks essentialised accounts of gender and locates the construction of the woman within various bodily performances, which are in part orchestrated in home spaces. Butler famously asserts that '[G]ender is the repeated stylization of the body, a set of repeated acts within a highly rigid regulatory frame that congeal over time to produce the appearance of substance, of a natural sort of being' (1990: 33). Drawing on the insights of Haraway and Butler this paper combines work on the role of space in framing gendered practices (see Cresswell 1999; Llewellyn 2004a, 20004b; Rose 1993), with an analysis of the ability of technologies to transform performative potentials in space (see here in particular Thrift 2004).

Much has already been written on the ways in which the structures of space (particularly the design of urban public arena and the development of suburban spaces; see Iveson 2003; Rose 1993) create and reinforce the differentiated role and life opportunities of men and women in society. By focusing on the intimate spatialities of home, this paper positions the gender politics of urban life in relation to a set of small-scale, and often overlooked, micro-practices. While still deeply interconnected with public discourses of the city, a consideration of these micro-practices

enables the geographies of gender to be understood in relation to the fine-grain topologies in and through which the everyday rhythms of gender are comprised. To this end, analysis claims that it is useful to understand the construction and maintenance of gender relations—or those roles, customs, and patterns of behaviour through which the identities of women and men are constituted—by moving beyond blunt notions of aggregate space (kitchen/office, home/work, suburb/downtown, front/back regions) and in to an analysis of the work-nets of place, body, and technology that under-gird the location of gendered identity and abilities. If gender, as Butler suggests, is about the performative capacity of the body, this paper argues that it is not just the architectural design and engineered construction of houses that define the gender relations they delimited (cf. Llewellyn 2004a, 2004b). This paper asserts that it is the constant fitting and retrofitting of the home with new technologies that delineate the performative capacities of the home and the rhythms of domestic life. Technologies define the time taken to complete the numerous practices associated with the maintenance of domestic existence. At the same time the introduction of specialist technological procedures in to the home constantly redefine who holds the necessary skill sets to animate and utilise household tools. As an interface between architectural space and body, analysis claims that technology, and its constant incorporation and re-incorporation within the home, offers new opportunities for rearticulating the nature domestic existence. By synthesising these accounts of space, technology and gender this paper ultimately explores the ways in which various technological myths can sustain the promise of spaces of liberation, while consistently delivering places of oppression.

Mythology, gender, and domestic technologies

A key issue to emerge from Haraway's reflections on domestic technology is the role that technology plays in blurring the boundaries between household space and various public arenas; a process that Blunt and Varley (2004) claim has become a defining tenet of contemporary geographical studies of the home. In her discussion of the homework economy, for example, Haraway describes an emerging myth that is associated with new high-tech communication technologies (2004: 25–29). This classic post-modern myth equates the technologies associated with tele-working with a newly expanded female performance-scape. This new performance-scape promises the emancipation of women from the confines of the domestic sphere and their fulfilling integration into the new virtual workplaces and knowledge regimes associated with global communications. According to Haraway, the braiding of spatio-technological myth, which is evident within the discourses associated with the homework economy, is indicative of the broader myth-making processes associated with the consolidation of technological practice and associated gender relations. Haraway thus asserts,

> The boundary is permeable between tool and myth, instrument and concept, historical systems of social relations and historical anatomies of possible bodies, including objects of knowledge. Indeed myth and tool mutually constitute each other. (2004: 23)

On Haraway's terms then, the study of technology is in part a study of a social myth-making process. Not only are technologies defined and subsequently animated by practical use, but the impact of technologies on social relations is in part a product of the systems of meaning that have to be constantly

produced to give tools their significance and associated sense of social value.

In his celebrated analysis of myth systems Barthes (2000) describes how the objects of fashion (and technology) are given meaning only through their careful alignment with a range of signifiers: including language; design; and even *acoustic imagery* (see in particular: 2000: 109–159). As complex systems of *meta-language* Barthes describes how myths, such as those which surround new domestic technologies, are constructed through the complex, but carefully orchestrated, interplay between physical form (tool) and social meaning (the cultural values and social transformations promised by a technological device). Understanding the mythologies associated with technological devices is important because it draws attention to the appropriation of myths within various systems of social control. Barthes reminds us that, 'myth has in fact a double function: it points out and it notifies, it makes us understand something and it imposes it on us' (2000: 117). The reflections of Haraway on the technological myths of the digital age, in part, support Barthes's ominous account of modern myth systems. While Barthes's analysis of myth is overly constrained by his opposition to the imposition of bourgeois culture (and is inevitably aligned with certain strains of Marxism), Haraway uncovers a much more diverse and insidious deployment of socio-technological myths through an analysis of the encoding and domination of women. Accordingly, Haraway exposes the dual role of domestic technologies in offering the hope of a liberated household sphere and a new matrix for gendered identity, while constantly threatening a reconfigured household within which '[al]l resistance to instrumental control disappears and all heterogeneity can be submitted to disassembly, reassembly, investment and exchange' (2000: 23).

The remainder of this paper analyses the emerging myth-systems associated with smokeless technologies in late nineteenth- and early twentieth-century Britain. The notion of myth-making is particularly significant given this paper's focus on clean air exhibitions. As places where commercial enterprises and inventors displayed their wares, clean air exhibitions constantly deployed the latest strategies for advertising and marketing their products. Consequently, while clean air exhibitions were important sites for the promotion of civic reform, they were also imbued with a strong commercial culture. If the proliferation of myths into all areas of our lives is, as Barthes suggests, the product of a modern commercial system that is increasingly able to dislocate the sign from the signified: the want from the need, it is interesting to consider how such economic tactics were also deployed within programmes for social reform. By exploring the various myth-making forms that were used to connect smokeless technologies with the reform of the British household and city, analysis claims that this revolution in domestic technologies represented a crucial moment within the historical transition of housewives into modern women—a process which reaches its post-gender dénouement in Haraway's vision of the cyborg.

Exhibition spaces and the mythologies of technology: the British smoke abatement lobby and the rise of domestic environmentalism

Technological progressivism and the dark city

In the second half of nineteenth-century Britain two key process—one environmental, the other technological—came together to

forever reshape the modern British home and related conceptualisations of the role of women therein. On the environmental front the problems of smoke pollution and associated smog were reaching their climax (see Hall, Land, Parker and Webb 1975; Mosley 2001; Stradling and Thorsheim 1999). While the problems of smoke pollution were not new to British cities (see, for example, John Evelyn's famous pamphlet *Fumifugium* of 1661), by the end of the nineteenth century the difficulties associated with air pollution, and knowledge of the damage it could cause, had both increased vastly. The fight against air pollution was waged by a variety of different groups including health experts and medical officers, architectural preservationists, nascent environmentalists, and different city Corporations. As this excerpt from the Domestic Energy Section of *The Times* illustrates, the fight against air pollution in the large metropolitan areas of Britain gradually became a moral crusade to reform the welfare and associated productivity of urban citizens,

> Darkness, especially unseasonal darkness, tended to depress the mind and lower the vitality, and it was no exaggeration that on a densely foggy day the value of the work done by every human being in the City was very materially lower than on a day when the sun was shining and the air was clear and crisp. (*The Times 1913* [LCC/PC/GEN/1/33])

It was on the basis of such narratives of environmentally based socio-economic decline that the reform of the urban atmosphere became a crucial goal of nascent urban policies in Britain (see Driver 1988; Hall, Land, Parker and Webb 1975). The quest for clean urban air involved a range of governmental initiatives that focused upon drainage and sanitation, the circulation of air within lodging houses, and the regulation of smoke and acid gases from factories. The aeration of urban space was an important part of what Foucault (1998 [1976]; 2004 [1997]) has described as biopolitics: or the way in which during the nineteenth century governmental authorities increasingly assumed responsibility for regulating the conditions required for human life from medical professionals, and in doing so invented the idea of public health. It is helpful to understand clear air exhibitions as one expression of the emerging state control of biological existence. As sites that brought together voluntary organisations, commercial enterprises, as well as governmental officials, clean air exhibitions represent a form of biopower that transcended narrow forms of state control.

On the technological front, by the late nineteenth and the early twentieth century we see the popularisation and increasingly widespread production of a range of new domestic devices that appeared to offer solutions to the problems of air pollution. The rise of electric and gas-powered stoves, cooking ranges, heating devices, irons, and kettles, as well as energy-saving coal-powered boilers, and the socio-cultural impacts of these technological revolutions, has already been analysed in great detail (see e.g. Luckin 1990; Parr 1970). What I am, however, most interested in within this paper are the ways in which these technologies became embroiled in a series of attendant myths that connected the reform of the private home and the public city with the reconstitution of gender relations and responsibilities.

While the prevention of air pollution and the promotion of new gas and electric technologies were in part separate endeavours, the two projects coalesced in the work of various smoke abatement societies, councils and committees that were formed at the time. Local smoke abatement societies started to spring up in large British cities during the

nineteenth century (Mosley 2001). While they campaigned vigorously on a variety of fronts to stop air pollution, such groups very quickly realised the potential that new domestic technologies offered their cause. As the following article from the *Glasgow Herald* indicates, in partnership with city Corporations, smoke abatement societies were keen to enlist the support of new domestic technologies, and the housewives who used them, in their crusade against urban smoke,

> The housewife does not pay much attention to what kind of fuel is used for the boiler, being of the opinion that the cheapest, dirtiest and smokiest coal were good enough, hence the pollution of the atmosphere … it should not only be borne in mind that they [smokeless technologies] lighten the labour connected with washing, but that were they to become universally used they would materially help the Corporation in its crusade against smoke. (*Glasgow Herald* 1912b [LCC/PC/Gen/1/25][3])

In order to popularise the public benefits of smokeless domestic technology smoke abatement societies, in collaboration with public health alliances and the gas and electric departments of urban corporations, sponsored the running of a range of exhibitions and demonstrations within which new technological myths could be animated. Sometimes these exhibitions were devoted to the clean air agenda. At other times special stalls were constructed within more general exhibitions, including the Festival of Britain (1951), various Ideal Homes Exhibitions, inventors conventions, and specialist gas and electricity demonstration events. This paper focuses explicitly on the role of dedicated clean air exhibitions in the promotion of new technological myths of the home. These exhibitions fused narratives of gas and electrical triumphalism with the public and private virtues of smokeless technologies. They also served to animate these new technological developments through the associative myths of a new home and a new female citizen.

Exhibitions and the construction of the public home: the birth of domestic environmentalism

The first recorded exhibition of smoke-prevention technology in the UK was organised by the Smoke Abatement Committee (an alliance of medical officers and civic reformers) and held in London in 1881 in the halls of the Royal Horticultural Society (Stradling and Thorsheim 1999). By the time that this exhibition closed it was estimated that 160,000 people had passed through its doors (Stradling and Thorsheim 1999). Following the success of this first exhibition, Manchester hosted a similar event in 1882 after which a host of cities and local smoke abatement societies followed suit (Mosley 2001). A range of people attended these early exhibitions including members of local trade unions and engineering guilds, architects, urban planners, and members of the public. Evidence from Manchester's 1882 exhibition indicates that a high proportion of the people who visited clean air exhibitions were from working-class households (Mosley 2001). These early meetings were followed over the next seventy years by regular exhibitions in places like London, Glasgow, Manchester, and Eastbourne. One of the most celebrated and widely publicised smoke abatement exhibitions was held in Glasgow in 1912. Organised and managed by James Freer, and supported by the Glasgow Corporation, the accounts of those who visited the exhibition provide an interesting insight into its purpose and powerful domestic myth-making potential.

At perhaps the simplest of levels, the Glasgow exhibition sought to connect the technological reform of the home with the environmental, and associated moral reform of the city as a whole. It is in this context that one commentator reflects on the 1912 exhibition in the following terms,

> The corporation of Glasgow seeks to realise their dream of a fair city where 'air, verdant airs, breathing the smell of field and grove attune the trembling leaves'. If the interior of the building in which the Smoke Abatement Exhibition is presently being held in New City Road is an earnest of what our city skies would become under the influence of the schemes and devices in the hall, it is surely a consumption devoutly to be wished. (*Scots Pictoral* 1912: 572 [LCC/PC/Gen/1/25])

The bucolic mythologies of urban moral enlightenment (whether it be based upon clean air, open spaces, or ornately designed arboretums) were of course not uncommon within the urban reform movements of the nineteenth and early twentieth centuries (see Boyer 1997; Driver 1988; Gandy 2002; Hall 1996; Stradling and Thorsheim 1999). What was different about smoke abatement exhibitions was that they shifted the responsibility for creating the type of pure environmental fabric, which was deemed necessary to reform the moral fibre of a city, from the public cadre of medical experts, planners, and landscape designers in to the private domiciles of the late Victorian and Edwardian home. The moral responsibility of the housewife for urban air reform, and the technological restructuring of the home, are captured effectively by a reporter from *The County Municipal Record*, who on visiting the Glasgow Exhibition observed,

> It is not the tall chimneyed factories that are wholly to blame for the dark pall that canopies the Glasgow sky … The part that the domestic chimney, and the shop chimney, and the office chimney play is large. It is from these that the bulk of dust falls, that is at once the temper rouser and despair of the City Housewives … The exhibition tackles the problem of domestic and office smoke in a comprehensive way and offers many alternatives to the smoke-raising coal fuel. The Gas Department of the Corporation exhibit many devices for gas heating, lighting and cooking. Their display is housed within a very handsome compartment of Doric design, divided into compartments showing kitchen, dining room, bath-room, shop window and general show stall. (*The County Municipal Record* 1912: 510 [LCC/PC/Gen/1/25])

While legislation to directly control domestic-based air pollution was still over forty years away in Britain, smoke abatement exhibitions had begun to connect the private spaces of the home to the public spaces of the city through the mobile particles of smoke pollution and the promise of technological change (for more on the connections between urban reform and gendered discourse in early twentieth century cities, see Boyer 1998; Deutsch 2002).

In many of the pamphlets and exhibition guides associated with early smoke abatement exhibitions the myths of moral domestic virtue are sustained by guilt-rousing portrayals of the irresponsible housewife. These sentiments were echoed in the *Glasgow News* at the time,

> So long as hundreds of public works and thousands of dwelling houses are belching out clouds of smoke one is apt to overlook the public-spirited enthusiasm of those who have adopted more modern and scientific methods. (*Glasgow News* 1912 [LCC/PC/Gen/1/25])

The myth of the public-spirited housewife, looking beyond the banal concern of her home to the broader needs of city, was a key

mythical component associated with the promotion of smokeless technologies in Britain. As we will see, the myth of *public womanhood* (see Boyer 1998) was part of a broader set of promises that surrounded new domestic appliances and their ability to reconstitute the female citizen/subject. Interestingly, however, the idea of the civic-minded housewife was used not only to convey a sense of urban moral reform, but also to develop a narrative of broader national renewal. F. W. Goodenough (Chairman of the Executive Commission of the National Gas Exhibition's Conference on the Economies of the Home) was consequently able to claim that,

> [t]he steady increase in the sobriety of the county in recent years was to an appreciable extent due first, to the better knowledge of cooking now possessed by the average working man's wife, and secondly in no small measure to the advent of the gas cooker, to enable the working man's wife to put her knowledge to practical use without any tiring, dirty work. (London Metropolitan Archives [LCC/PC/GEN/1/33])

It is clear in this context that the visions of *domestic environmentalism*, promoted so avidly by those organising and designing smoke abatement exhibitions, were as much about the reform of the social relations of the home as they were the reconstitution of the atmospheric relations of the metropolis.

Technological myths: science and the sights, sounds and smells of the exhibition

In his analysis of myth as a meta-language, Barthes reveals how myths are produced and sustained through a range of language forms. Barthes argues that within the myth-making process, *a range of language forms decorate empty signifiers*. These language forms can include texts (both written and oral), visual imagery, acoustic events, and a range of sensory messages, all of which furnish technological objects with new social meanings. It is apparent from the surviving accounts of smoke abatement exhibitions that spaces of exhibit were utilised to create a series of myths of contrast, within which the exhibitions as a whole, and their individual stalls, were juxtaposed with visions of the unreformed city and household. The multi-sensory nature of these myths of contrast is captured poignantly within the pages of the *Scots Pictoral*,

> You pass from the cold fogginess of the streets through the exhibition gate into an airy hall where shining cleanliness, inviting warmth, and glittering lights all welcome you. Other senses than the eyes are pleased. The music of the Empire Ladies' Scarlet Orchestra sounds cheerfully over the building, while the nostrils are agreeably tickled by the faint suggestive smell of appetising dishes which are cooking on the stoves and ranges. (*Scots Pictoral* 1912: 572 [LCC/PC/Gen/1/25])

Here we see how light, sound, smell, and the cleanliness of surfaces are all carefully marshalled by the exhibition to expose the failings of the smoke-producing city and home. In an account of the International Smoke Abatement Exhibition (and the associated electrical kitchen display), which was held in Islington in 1912, the *Electrical Review* illustrates how the technological mythologies proffered by exhibition halls worked not only on the basis of sensory presence, but also absence,

> Needless to say, there are no nauseous odours, no suffocating fumes, in the neighbourhood of this cuisine; nor is the temperature high. Perfect comfort

reigns and hence it is possible to place the restaurant and kitchen close together in the same room. (*Electrical Review* 1912: 496 [LCC/PC/Gen/1/25])

In an attempt to persuade homeowners of the virtues of smokeless technologies smoke abatement exhibitions combined the sweet smells and music of the smokeless home with a lingering memory of the nauseous and uncomfortable coal-based domestic scene. Accounts of coal-based homes describe domestic scenes that are dirty, unhealthy, time-consuming, and uncomfortable. The smoke-based home was characterised by a constant veil of soot that emanated from the fireplace, laundry room, and stove. Not only did coal-based cooking, washing, and heating produce smoke it also took significant amounts of time to run and maintain. In addition to the time taken to operate coal-based appliances, it appears that housewives and domestic servants were also required to devote a significant amount of time each day cleaning the dusty deposits that were left by such devices throughout the home. Finally, and perhaps most irritatingly given the inconveniences and indignities described above, coal-based heating was extremely inefficient, offering limited heat vectors along which to warm a house, while suffering depressingly high levels of heat lost to the chimney.

Although Barthes does not explicitly discuss the pre-cognitive forms which myths can take, in his insistence that myths cannot be concepts or ideas he does open the possibility of conceiving of myths as more-than-representations of reality (a possibility which his entrenched semiotics never really allows him to explore) (2000: 109). What is clear, however, is that in the construction of a new myth of the technological home, smoke abatement exhibitions deployed a full range of sensory practices in order to aid and abet their broader social aims. What is palpably clear from the numerous accounts of smoke abatement exhibitions is that they marshalled their various stalls, exhibits, demonstrations, and literatures to demonstrate how various technological devices could transform the internal day-to-day workings of the modern home. Most smoke abatement exhibitions came replete with elaborately designed kitchen areas, laundry workshops, and living room demonstrations. These exhibition spaces were designed to reveal the benefits that new technologies could bring to the internal workings of the home and in particular to the labours of the housewife. In this context, of course, smoke abatement exhibitions were only one arena of many at the time which sought to transform the unruly and dirty home into a model of technological and economic efficiency. The birth of home economics, the new choreographies of kitchen spaces associated with modern architecture (see Llewellyn 2004a, 2004b), and the promotion of new Taylorist models for efficient movement in the home (Cresswell 2006: Chap. 4; Luckin 1990: 47) all coalesced in early to mid-twentieth-century Britain to make the home an intense site of socio-scientific scrutiny. At the heart of these diverse initiatives was a belief that when subjected to the modern scientific principles of planning, design, and instrumentation, it would be possible to produce homes that provided healthy living spaces for the family and the liberation of the housewife from domestic toil.

Different smoke abatement exhibitions clearly exploited these myths of the modern scientific home and its promise to liberate the housewife. Listen to this account of the laundry exhibits of the Glasgow Smoke Abatement Exhibition of 1912,

[h]ousewives are also taking an unusual interest in the laundry work, a display which shows washing

and wringing machines at work and all kinds of irons suitable for domestic and factory use in operation. Is this to be wondered at? On this ever-recurring day the guideman's patience is very sorely tried. On his return from his daily toil he has often to put up with many inconveniences. If the washing has been heavy for instance, he may find it difficult to move about the house owing to the quantities of wet and partially dried clothing hanging up. What a picture appears in the minds eye of the housewife as she looks at the neat and daintily dressed laundresses at work in the exhibition buildings. They deal with the most delicate fabrics with ease compared with the conditions experienced in many homes. (*Glasgow Herald* 1912a [LCC/PC/Gen/1/25])

The orderly home, with those 'daintily dressed laundresses', was clearly intended to have benefits for both the male and female occupants of the home. Notwithstanding this, however, it is clear that the hegemonic myth promoted within smoke abatement exhibitions was the vision of the modern housewife, liberated from domestic toil and able to take her place within the public spaces of work and city politics. In addition to offering a distinctly scientific vision of the home, it is also clear that such ideologies were under-girded by strong bourgeois ideals and an associated desire to subject the working-class home to the practices of middle-class Britain (see here Walkerdine and Lucey 1989). The meshing of bourgeois notions of public virtue with female emancipation was cemented within smoke abatement exhibits by the idea that smokeless technologies not only liberated the city from foul air, but also freed the home from the shackles of unthinking masculine design. This reflection on the promotion of new smokeless technologies at the Ideal Homes Exhibition held at Olympia in 1913 reveals how these new devices would provide the impetus needed to circumvent the inertia of household design and practices,

> Perhaps there is no sphere within which conservatism more successfully holds its own than in the building, arrangement, and equipment of an ordinary middle class home … women declare that our national rigidity in such matters, our reluctance to adopt new contrivances, our tolerance of needless labour and inconveniences, is that architects, plumbers, and builders belong to the sex that inhabits the house but does not really live in them. (*The Times* 1913 [LCC/PC/GEN/1/33])

As we have already observed, smoke abatement exhibitions suggested that the adoption of smokeless technologies offered housewives the potential to contribute to public welfare (through a domestic environmental consciousness). But beyond this vision of the public-minded housewife, such exhibitions also asserted that the adoption of smokeless technological devices would generate the time and energy that women needed to become more involved in a range of activities outside the domestic sphere. The basis for this promise, of course, was the vision of a new home that was publicly oriented and subjected to the strictures of modern science, bourgeois aesthetics, and industrial efficiency.

Technological competition and pedagogic attainment

In addition to offering the chance to observe the benefits of smokeless technologies in the home, many early smoke abatement exhibitions offered more inter-active contexts within which visitors could become accustomed to the workings of these new devices. Lecture halls were set aside and regular cookery demonstrations were enacted in order to aid

the didactic role of the exhibitions. One visitor to the Glasgow Exhibition of 1912 reflected on the educational components of the event,

> A popular feature is the cookery demonstrations held daily by Miss E.M. Dods and Mr William Kerr, and that these are being appreciated is shown by the large number of ladies always in attendance … Besides these regular lectures, the operations of the cooks at several stalls throughout the exhibition are watched with interest by many of the fairer sex. (*Glasgow Evening Citizen* 1912 [LCC/PC/Gen/1/25])

In addition to dispelling any lingering myths about the limitations of gas and electric cooking devices, these demonstrations served to illustrate the relative ease with which complex culinary achievements could be secured,

> The lecture hall is a centre of instruction in the scope of gas and electric cooking. Yesterday the demonstrations of E.M. Dods and William S. Kerr in the baking of pastries, scones and pies, and in the preparation of a six-course dinner were witnessed by large numbers. There will be four demonstrations to-day. Miss Dods will make omelettes and soufflés in the forenoon, and in the evening she will prepare a good, plain dinner. (*Glasgow Evening Citizen* 1912 [LCC/PC/Gen/1/25])

Beyond demonstrations, cookery competitions also offered younger exhibition goers the chance to become familiar with the workings of new kitchen appliances. In the case of the Glasgow Exhibition of 1912 these cookery competitions were run through the Local School Board and involved students from different schools competing on a daily basis to win awards for their cooking expertise. While the notion of *improvement through competition* is a common strategy within exhibition-based initiatives (see Anderson 2003), the gendered nature and purpose of these cookery competitions is instructive. The operation and results of one cookery competition, for example, were recounted in the *Glasgow News* at the time,

> The children were asked to bake scones. The competitors, it may be mentioned, not only mix their own materials, but are allowed to regulate the gas cookers. The prize winners were, 1st Prizes Maggie M'Murtie 172 Graham Street, Annie Johnston 134 Claythom Street, 2nd Prizes Katie Orr 4 Parkhouse Lane, Sarah Browley 169 Duke Street, 3rd Prizes Jeani Boay 450 Gallowgate, Jeanie Motherwell 272 Gallowgate. (*Glasgow News* 1912 [LCC/PC/Gen/1/25])

That all of the winners in this competition were young girls should perhaps come as little surprise—it appears that only female school children were allowed to participate in the competition. The gendered structuring of this event does, however, serve to illustrate how the transition to a smokeless home was as much about retraining women in necessary domestic skills, and re-positioning them within a newly technological home, as it was about liberating them from the labours of the domestic sphere. If, as Judith Butler (1990) argues, gender is about practice much more than representation, it is clear that the seemingly guileless exhibition-based training provided within these cookery competitions was in part designed to provide a new set of domestic procedures and household habits within which modern womanhood could be redefined (see Cresswell 2006: 106–117). It appears that while offering the promise of public womanhood, UK smoke abatement exhibitions were part of a broader apparatus of socio-cultural governance which perpetuated the *spatial containment* of British women in the home (see Boyer 1998: 270).

Conclusion—on technological myths and household practices

The work of Haraway and Barthes illustrates the role of myth-making within the animation and social adoption of new technologies. We could say that tools are not made as technologies, rather they become technological within the social systems which give them value and meaning. This paper's discussion of the promotion of domestic smokeless technologies within various clean air exhibitions has revealed the roles of design, architecture, demonstration, and discourse within the constitution of new technology. As Haraway's and Barthes's studies of myth also reveal, however, the purpose of myth-making is to distort meaning and to pre-emptively preclude other ways of seeing the world (or of interpreting technology) (see Barthes 2000: 121). As we now look back in time on British clean air exhibitions it is clear that their real achievement lay in the production of technological myths that promoted smokeless devices as liberating transformers of the home and of womanhood, while simultaneously re-inscribing the home as a new space of gendered conduct. Perhaps the most obvious role of British smoke abatement exhibitions in deflecting the implications of new domestic technologies can be seen in relation to household time. The association between smokeless technologies and labour saving was used within smoke abatement exhibitions to suggest the production of a new female subject, a subject whose identity was open to re-inscription due to its temporal liberation. This vision of a 'time of liberation' has, however, been contested by many writing on the scientific management of the home (see Cresswell 2006; Llewellyn 2004a). Far from freeing women from domestic labour, it has been argued that the implementation of smokeless technologies and the associated scientisation of household practices has enabled the home to become colonised by the linear (and some would say masculine) time classically associated with modernity. Consequently, far from liberating women, the subjugation of home time to factory time removed a much looser use and experience of time within which many women found a very different type of freedom (see Bennett 2002; Felski 1999; Johnson 1996).

This paper has shown that the duplicity of technological myth is evident not only in relation to the temporalities of the home, but also the spatialities of the domestic scene. While portentous of an expanded spatiality of the home—within which private choices and public affects were connected by the discourses of domestic environmentalism—it is evident that far from expanding the spatial capacities of women, the promotion of smokeless technologies facilitated the re-spatialisation of the woman within the home. Through the careful integration of design and technology, and the assiduous training of women in the use of new domestic appliances, it is clear that smoke abatement exhibitions fixed women firmly within the spaces of the home and re-inscribed their mobility within home space (see Cresswell 2006: Chap. 4). While smoke abatement exhibitions sought to generate a sense of public responsibility within the housewife this move was not supported by the creation of new socio-political opportunities for women. This is, of course, precisely the danger of the *differential axis of domination* that Butler recognises occurring when 'the feminist subject turns out to be discursively constituted by the very political system that is supposed to facilitate its emancipation' (1990: 2).

While offering a myth of female emancipation, and a more open sense of the home, it is clear that British smoke abatement exhibitions were part of a broader set of processes by which the spaces and times of the home were to be restructured by new technological regimes.

While such regimes rapidly become part of a broader technologically unconscious ordering of time and space (see Thrift 2004), it is in the heterotopias of exhibition halls and model homes that the alternative potentials of technology to reconfigure social relations and gendered identities become apparent. It is in this context, that we must remain mindful of the various mythological regimes that animate different technologies, and constantly explore other ways of knowing and using tools in order to promote alternate ways of acting and being-in-space.

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Notes

1 LCC/PC/GEN/1/33: London County Council Atmospheric Pollution and Smoke Abatement General Files 1878–1914, London Metropolitan Archives.

2 The historical records presented in this paper have been gathered from a range of sources. These sources include: local and national newspaper accounts of the exhibitions; accounts of the clean air exhibitions recorded in more specialist journals, including the *Electrical Review* and the *County Municipal Record*; the Smoke Abatement Records of the London County Council (held at the Metropolitan Archives, Farringdon, London); the exhibition brochures and records of the National Society for Clean Air and the Clean Air Council (held at the National Archives, Kew and the National Library of Wales).

3 LCC/PC/Gen/1/25: London County Council Atmospheric Pollution and Smoke Abatement General Files 1912–56, London Metropolitan Archives.

References

Anderson, K. (2003) White natures: Sydney's Royal Agricultural Show in post-human perspective, *Transactions of the Institute of British Geographers* 28: 422–441.

Barthes, R. (2000) *Mythologies*, selected trans. Lavers, A. London: Vintage.

Bennett, T. (2002) Home and everyday life, in Bennett, T. and Watson, D. (eds) *Understanding Everyday Life*. Oxford: Open University Press, pp. 1–50.

Blunt, A. (2002) Land of our mothers: home identity and nationality for Anglo-Indians in British India, 1919–1947, *History Workshop Journal* 54: 49–72.

Blunt, A. and Varley, A. (2004) Introduction: geographies of home, *Cultural Geographies* 11: 3–6.

Boyer, C. (1997) *Dreaming the Rational City: The Myth of American City Planning*. London: MIT Press.

Boyer, K. (1998) Place and the politics of virtue: clerical work, corporate anxiety, and changing meanings of public womanhood in early twentieth-century Montreal, *Gender, Place and Culture* 5: 261–276.

Brimblecombe, P. (1987) *The Big Smoke: A History of Air Pollution in London Since Medieval Times*. London: Methuen & Co.

Butler, J. (1990) *Gender Trouble: Feminism and the Subversion of Identity*. London: Routledge.

Butler, R. and Parr, H. (eds) (1999) *Mind and Body Spaces: new geographies of illness, impairment and disability*. London: Routledge.

Cresswell, T. (1999) Embodiment, power and the politics of mobility: the case of the female tramps and hobos, *Transactions of the Institute of British Geographers* 24: 175–192.

Cresswell, T. (2006) *On the Move: Mobility in the Modern Western World*. New York: Routledge.

Deutsch, S. (2002) *Women and the City: Gender Space and Power in Boston, 1870–1940*. Oxford: Oxford University Press.

Domosh, M. (1998) Geography and gender: home again?, *Progress in Human Geography* 22: 276–282.

Domosh, M. and Morin, K. (2003) Travels with feminist historical geography, *Gender, Place and Culture* 10: 257–264.

Driver, F. (1988) Moral geographies: social science and the urban environment in mid-nineteenth century England, *Transactions of the Institute of British Geographers* 13: 275–287.

DuPuis, E.M. (ed.) (2004) *Smoke and Mirrors: The Politics and Culture of Air Pollution*. London: New York University Press.

Electrical Review (1912) International Smoke Abatement Exhibition, 70(1): 495–496.

Felski, R. (1999) The invention of everyday life, *New Formations* 39: 15–31.

Foucault, M. (1998 [1976]) *A History of Sexuality, Volume 1—The Will to Knowledge*. London: Penguin Books.

Foucault, M. (2004 [1997]) *Society Must be Defended*. London: Penguin Books.

Gandy, M. (2002) *Concrete and Clay: Remaking Nature in New York City*. Cambridge, MA: MIT Press.

Glasgow Evening Citizen (1912) Smoke nuisance—a second visit to the exhibition at the zoo, 27 Sep.

Glasgow Herald (1912a) Smoke abatement in Glasgow, 24 Sep.

Glasgow Herald (1912b) A pure atmosphere—exhibition features, 28 Sep.

Glasgow News (1912) No more smoke, 25 Sep.

Gowans, G. (2003) Imperial geographies of home: Memsahibs and Miss-Sahibs in India and Britain, 1915–1947, *Cultural Geographies* 10: 424–441.

Hall, P (1996) *Cities of Tomorrow*. Oxford: Blackwell.

Hall, P., Land, H., Parker, R. and Webb, A. (1975) *Change, Choice and Conflict in Public Policy*. London: Heinemann Educational Books.

Haraway, D. (1991) *Simians, Cyborgs and Women: The Reinvention of Nature*. New York: Routledge.

Haraway, D. (1997) *Modest_Witness@Second_Millennium. FemaleMan©_Meets_OncoMouse™*. London: Routledge.

Haraway, D. (2004) A manifesto for cyborgs: science, technology, and socialist feminism in the 1980s, *The Haraway Reader*. London: Routledge.

Iveson, K. (2003) Justifying exclusion: the politics of public space and the dispute over access to McIvers ladies' baths, Sydney, *Gender, Place and Culture* 10: 215–228.

Johnson, L. (1996) 'As housewives we are worms': women, modernity and the home question, *Cultural Studies* 10: 449–463.

Kaika, M. (2005) *City of Flows: Modernity, Nature and the City*. London: Routledge.

Legg, S. (2003) Gendered politics and nationalised homes: women and the anti-colonial struggle in Delhi, 1930–47, *Gender, Place and Culture* 10: 7–27.

Llewellyn, M. (2004a) Designed by women and designing women: gender, planning and the geographies of the kitchen in Britain 1917–1946, *Cultural Geographies* 10: 42–60.

Llewellyn, M. (2004b) 'Urban village or white house': envisioned spaces, experienced places, and everyday life at Kensal House, London in the 1930s, *Environment and Planning D: Society and Space* 22: 229–249.

Luckin, B. (1990) *Questions of Power: Electricity and Power in Inter-war Britain*. Manchester: Manchester University Press.

Marsdon, S. (2000) The social construction of scale, *Progress in Human Geography* 24: 219–242.

Morin, K. and Berry, L. (1999) Emancipatory current trends in feminist historical geography, *Gender, Place and Culture* 6: 311–330.

Mosley, S. (2001) *The Chimney of the World: A History of Smoke Pollution in Victorian and Edwardian Manchester*. Cambridge: White Horse Press.

Mosley, S. (2004) Public perceptions of smoke pollution in Victorian Manchester, in DuPuis, E.M. (ed.) *Smoke and Mirrors: The Politics and Culture of Air Pollution*. New York: New York University Press, pp. 51–76.

Parr, A.E. (1970) Heating, lighting, plumbing, and human relations, *Landscape* 19: 28–29.

Rose, G. (1993) *Feminism and Geography: The Limits to Geographical Knowledge*. Cambridge: Polity Press.

Scots Pictoral (1912) 28 Sep.: 572.

Seigworth, G.J. (2000) Banality for cultural studies, *Cultural Studies* 14: 227–268.

Star, S.L. (2000) From Hestia to home page: feminism and the concept of home in cyberspace, in Bell, D. and Kennedy, B.M. (eds) *The Cybercultures Reader*. London: Routledge, pp. 632–643.

Stradling, D. and Thorsheim, P. (1998) The smoke of great cities: British and American efforts to control air pollution, 1860–1914, *Environmental History*, October: 6–31.

The County Municipal Record (1912) Smokeless city, 24 Sep.: 510.

The Times (1913) The fallacy of fires—on the Ideal Homes Exhibition at Olympia, 10 Oct.

Thrift, N. (2004) Remembering the technological unconscious by foregrounding knowledge positions, *Environment and Planning D: Society and Space* 22: 175–190.

Walkerdine, V. and Lucey, H. (1989) *Democracy in the Kitchen: Regulating Mothers and Socialising Daughters*. London: Virago Press.

Whitehead, M. (2005) Between the marvellous and the mundane: everyday life in the socialist city and the politics of the environment, *Environment and Planning D: Society and Space* 23: 159–316.

Abstract translations

Domestiquer le mythe technologique: le genre, les espaces d'exposition et le mouvement pour la promotion de l'air pur au Royaume-Uni

Cet article explore la relation au sein du ménage britannique entre les technologies et la reconfiguration des relations entre les genres. En s'inspirant des travaux de Haraway sur le concept du mythe technologique et des réflexions de Barthes sur le processus moderne par lequel naissent les mythes, l'analyse s'intéresse à la façon dont les activités de promotion et d'animation de nouvelles technologies sans fumée qui sont apparues en Grande-Bretagne à la fin du dix-neuvième et au début du vingtième siècle étaient soutenues par une vision reconstituée du ménage britannique et de la place que la femme y occupait. Ces technologies sans fumée s'accompagnaient en partie de la promesse de délivrer la femme au foyer de la «servitude» du travail domestique. Pourtant, une perception élargie du ménage se dégageait des mythes liés aux technologies sans fumée, et par laquelle les citoyennes pouvaient allier un souci de répondre aux besoins domestiques de la famille avec le vent de réformes morales qui soufflait dans la ville dans son ensemble. Au moyen d'une analyse des foires commerciales sur la réduction de la fumée tenues partout au Royaume-Uni à la fin du dix-neuvième et au début du vingtième siècle, cet article examine la manière dont les technologies sans fumée se sont nouées avec la nouvelle géographie mythique du ménage britannique. Ce nouveau ménage, à un certain niveau, annonçait une libéralisation de la sphère domestique par la science et une citoyenneté féminine plus engagée dans la sphère publique, mais au bout du compte, il a eu pour effet de restructurer et de réaffirmer le rôle de la femme britannique au sein du ménage moderne. L'analyse se focalise davantage sur les objets exposés dans les foires et les informations relayées par la presse populaire à propos des principales foires commerciales sur la réduction de la fumée tenues au Royaume-Uni.

Mots-clefs: technologies domestiques, ménage, genre, foires commerciale sur l'air pur.

Domesticando el mito tecnológico: género, espacios de exposición y el movimiento de aire limpio del Reino Unido

Este papel explora la relación que existe entre las tecnologías y la reconfiguración de relaciones de género en el hogar británico. Haciendo uso del concepto de Haraway de mito tecnológico, y las reflexiones de Barthe sobre el proceso moderno de crear mitos, el análisis considera cómo el fomento y la promoción de las nuevas tecnologías que no emitían humo a finales del siglo diecinueve y a principios del siglo veinte en Gran Bretaña eran sustentados por una visión reconstituida del hogar británico y del lugar de la mujer en ello. En parte, las tecnologías que no emitían humo prometían liberar a las amas de casa de la pesadez del trabajo doméstico. Los mitos asociados con estass tecnologías también sugerían un sentido más abierto del hogar, dentro del cual las ciudadanas femininas podrían combinar una preocupación por las necesidades domésticas de la familia con una reforma más amplia de la ciudad en su totalidad. Mediante un análisis de las varias exposiciones sobre la disminuición del humo, que se celebraban por todo el Reino Unido durante la última parte del siglo diecinueve y a principios del siglo veinte, este papel explora cómo las tecnologías que no emiten humo llegaron a formar parte de una nueva geografía mítica del hogar británico. Aunque a un nivel este nuevo hogar prometía aportar un entorno doméstico liberado por la ciencia, y una ciudadanía feminina con más participación pública, en última instancia servía para reestructurar y reafirmar el papel de la mujer británica dentro del hogar moderno. El análisis centra específicamente en las materiales de exposición e historias de la prensa popular asociadas con las más importantes exposiciones sobre la disminuición del humo en el Reino Unido.

Palabras claves: tecnologías domésticas, el hogar, género, exposiciones de aire limpio.